UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,443	02/06/2004	Takeshi Morikawa	018656-681	5146

21839 7590 06/27/2008
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
RILEY, MARCUS T	

ART UNIT	PAPER NUMBER
2625	

NOTIFICATION DATE	DELIVERY MODE
06/27/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/772,443	MORIKAWA ET AL.	
	Examiner	Art Unit	
	MARCUS T. RILEY	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/04/2006; 02/06/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is responsive to applicant's remarks received on January 28, 2008. Claims 1-19 remain pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-19, filed on January 28, 2008 have been fully considered but they are not persuasive.

Applicant's Arguments

Claims 1 - 8, 10 - 15, and 17 - 19 have been rejected under 35 USC 103(a) as being unpatentable over USP 6,130,757, hereinafter Yoshida, in combination with USP 6,208,273, hereinafter Dye.

The Examiner relies upon Yoshida for an alleged teaching of a data processing apparatus comprising one or more compression/decompression units that compress the data for the input job and decompress the compressed data. Applicants reserve the right to challenge this conclusion at a later time, if necessary and appropriate.

The Examiner acknowledges that Yoshida does not expressly disclose a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, determines whether or not the data for said next job will undergo compression or

decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination. To overcome this deficiency, the Examiner relies on Dye.

In particular, the Examiner alleges that Dye discloses a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination. To support this conclusion, the Examiner relies upon column 21, lines 63 - 67 of Dye.

However, the cited portion of Dye merely describes that the compression cache control unit 281, along with the switch unit 261, determine the transaction type, priority and control required to complete the transaction by either the L3 data cache 291, the parallel compression and decompression unit 251 or the main memory interface 560. Column 21, lines 63 - 67 of Dye. The cited portion of Dye is completely silent with regard to (1) obtaining the processing wait period between pages of said current job, (2) determining whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and (3) controlling the

execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Basically, Dye simply acknowledges that priority and control are determined. It does not explain how the priority and control are determined. Accordingly, Applicants submit that neither of the applied references teach the claimed combination of claim 1, and in particular, the combination that includes, among other elements:

(1) obtaining the processing wait period between pages of said current job,

(2) determining whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and

(3) controlling the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Based on the foregoing, Applicants submit that the applied references do not teach or even suggest the combination of claim 1. However, Applicants also reserve the right to challenge the Examiner's analysis of Dye and the Examiner's alleged motivation for combining Dye with Yoshida.

Claims 2 - 3 depend from claim 1, and are thus also patentable over the applied art.

Claim 4 defines a data processing apparatus that includes, among other things, a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), identifies an attribute of said next job, determines whether

or not the data for said next job will undergo compression or decompression based on said identified next-job attribute, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination. Such a controller is also not taught by Dye. Basically, Dye simply acknowledges that priority and control are determined. It does not explain how the priority and control are determined. Accordingly, Applicants submit that neither of the applied references teach the claimed combination of claim 4, and in particular, the combination that includes, among other elements:

(1) identifies an attribute of said next job,

(2) determines whether or not the data for said next job will undergo compression or decompression based on said identified next-job attribute, and

(3) controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Based on the foregoing, Applicants submit that the applied references do not teach or even suggest the combination of claim 1. Claims 5 - 10 depend from claim 4, and are thus also patentable.

Claims 11 - 19 are patentable over the applied art at least for the reasons set forth above with respect to claims 1 and 4.

Accordingly, the Examiner is respectfully requested to withdraw the rejections. In the event that the Examiner persists with the rejections, the Examiner is requested to specifically

identify where Dye teaches the three elements identified above in claim 1 and the three elements identified above in claim 4.

Examiners Answer

Dye teaches, disclose or suggest the combination of claim 1.

(1) obtaining the processing wait period between pages of said current job, (*"Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory."* column 20, lines 31-37);

(2) determining whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period (*"In one embodiment where the parallel compression and decompression engine 251 does not contain SRAM buffer storage, the L3 data cache 291 can double for such SRAM buffers used to store write blocks for future compression and read blocks for future decompression. Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory. Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression)."* column 20, lines 27-42)

(3) controlling the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination (*"Thus the L3 data cache 291 and associated cache control logic 281 buffer the*

transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression).” column 20, lines 36-42).

Based on the foregoing, Examiner submits that the applied references teach, disclose or suggest the combination of claim 1.

Claims 2 - 3 depend from claim 1, and are also not patentable over the applied art.

Dye teaches, disclose or suggest the combination of claim 4.

(1) identifies an attribute of said next job (*“Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory.”* column 20, lines 31-37)

(2) determines whether or not the data for said next job will undergo compression or decompression based on said identified next-job attribute (*“In one embodiment where the parallel compression and decompression engine 251 does not contain SRAM buffer storage, the L3 data cache 291 can double for such SRAM buffers used to store write blocks for future compression and read blocks for future decompression. Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory. Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access*

latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression)." column 20, lines 27-42);

(3) controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination (*"Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression).*" column 20, lines 36-42).

Based on the foregoing, Applicants submit that the applied references teach disclose or suggest the combination of claim 1. Claims 5 - 10 depend from claim 4 and are also not patentable.

Claims 11 - 19 are not patentable over the applied art at least for the reasons set forth above with respect to claims 1 and 4.

Accordingly, Applicant's arguments with respect to claims 1-19 have been fully considered and they are not persuasive, Thus, the rejections and not withdrawn.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-8, 10-15, 17-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US 6,130,757 hereinafter, Yoshida '757) in combination with Dye et al. (US 6,208,273 hereinafter, Dye '273).

Regarding claim 1; Yoshida '757 discloses a data processing apparatus comprising: one or more compression/decompression units that compress the data for the input job and decompress the compressed data (*"...image data is then compressed by compressing unit 311 and is stored into code memory 306 as compressed image data."* column 8, lines 1-3). See also (*" ...the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data."* column 8, lines 32-34).

Yoshida '757 does not expressly disclose a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Dye '273 discloses a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period

between pages of said current job, determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination (*"In one embodiment where the parallel compression and decompression engine 251 does not contain SRAM buffer storage, the L3 data cache 291 can double for such SRAM buffers used to store write blocks for future compression and read blocks for future decompression. Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory. Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression)."* column 20, lines 27-42). See also (*"Thus, the compression cache control unit 281 along with the switch unit 261 determine the transaction type, priority and control required to complete the transaction by either the L3 data cache 291, the parallel compression and decompression unit 251 or the main memory interface 560."* column 21, lines 63-67).

Yoshida '757 and Dye '273 are combinable because they are from the same field of endeavor of data compression/decompression (*"The present invention relates to computer system architectures, and more particularly to a system and method for performing parallel data compression and decompression..."* Dye '273 at column 1, lines 23-26).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the data processing apparatus as taught by Yoshida '757 by adding a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination as taught by Dye '273.

The motivation for doing so would have been to improve latency and reduce performance degradations (*"To improve latency and reduce performance degradations normally associated with compression and decompression techniques..."* Dye '273 at column 4, lines 33-36).

Therefore, it would have been obvious to combine Yoshida '757 with Dye '273 to obtain the invention as specified in claim 1.

Regarding claim 2; Yoshida '757 discloses where the processing wait period is longer than said minimum processing time, said controller permits said compression/decompression unit(s) to process said next job between pages of said current job (*"For printing, the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data. The image data in image memory 304 is transferred to print processing unit 40 via rotation processing unit 307 and multi-valuing unit 308."* column 8, lines 33-38). See also (*"CPU 103 judges whether another page should be processed by*

referring to the memory management table while the current page is processed. If there is no other pages to be processed, CPU 103 performs the termination process for the current job and judges whether there is another job (S86, S80).” column 17, lines 66-67 thru column 18, lines 1-4).

Regarding claim 3; Yoshida ‘757 discloses where the said job includes a copy job in which image data for an original document ready by an original document reader is printed out or a print job in which image data received from an external terminal is printed out (“*Each of copying machines 1, 4, and 6 includes such functions as image reading, image processing with which read images are edited, and printing.”* column 4, lines 25-26).

Regarding claim 4; Yoshida ‘757 discloses a data processing apparatus comprising: one or more compression/decompression unit(s) that compress the data for the input job and decompress the compressed data (*“image data is then compressed by compressing unit 311 and is stored into code memory 306 as compressed image data.”* column 8, lines 1-3). See also (*“ ...the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data.”* column 8, lines 32-34).

Yoshida ‘757 does not expressly disclose a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), identifies an attribute of said next job, determines whether or not the data for said next job will undergo compression or decompression based on said identified next-job attribute, and controls the

execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Dye '273 discloses and a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), identifies an attribute of said next job, determines whether or not the data for said next job will undergo compression or decompression based on said identified next-job attribute, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination (*"In one embodiment where the parallel compression and decompression engine 251 does not contain SRAM buffer storage, the L3 data cache 291 can double for such SRAM buffers used to store write blocks for future compression and read blocks for future decompression. Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory. Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression)."* column 20, lines 27-42). See also (*"Thus, the compression cache control unit 281 along with the switch unit 261 determine the transaction type, priority and control required to complete the transaction by either the L3 data cache 291, the parallel compression and decompression unit 251 or the main memory interface 560."* column 21, lines 63-67).

Yoshida '757 and Dye '273 are combinable because they are from the same field of endeavor of data compression/decompression (*"The present invention relates to computer system architectures, and more particularly to a system and method for performing parallel data compression and decompression..."* Dye '273 at column 1, lines 23-26).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the data processing apparatus as taught by Yoshida '757 by adding a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), identifies an attribute of said next job, determines whether or not the data for said next job will undergo compression or decompression based on said identified next-job attribute, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination as taught by Dye '273.

The motivation for doing so would have been to improve latency and reduce performance degradations (*"To improve latency and reduce performance degradations normally associated with compression and decompression techniques..."* Dye '273 at column 4, lines 33-36).

Therefore, it would have been obvious to combine Yoshida '757 with Dye '273 to obtain the invention as specified in claim 4.

Regarding claim 5; Yoshida '757 discloses where the said next-job attribute consists of whether the data processing for the next job is to take place on a page unit, band unit or block unit basis (*"CPU 103 searches print job table PT for a job having the highest priority each time*

a page of job is processed. The job having the highest priority is generally processed first. Jobs are deleted from print job table PT when the jobs are completed." column 11, lines 29-33).

Regarding claim 6; Yoshida '757 discloses where the said next-job attribute consists of the type of the next job (*"The job IDs are job identification numbers for facsimile transmissions. The priorities indicate the priorities of the jobs for facsimile transmissions. The registration time indicates the time when the job was registered. The job statuses indicate the current statues of the jobs such as SUSPENDED, WAITING, and IN TRANSMISSION."* column 11, lines 38-43).

Regarding claim 7; Yoshida '757 discloses where said next-job attribute consists of the input source for the next job (*"CPU 103 for memory unit 30 controls memory unit 30 and external input/output controlling unit 50. More specifically, CPU 103 stores the image data, which is requested by another apparatus via external input/output controlling unit 50, into memory unit 30. CPU 103 reads the image data from memory unit 30 and instructs print processing unit 40 to output the image data to execute printing. CPU 103 also instructs facsimile converting unit 51 to output the image data to execute a facsimile transmission. CPU 103 instructs external input/output controlling unit 50 to output the image data to send the image data to another apparatus for a requested job."* column 7, lines 23-34).

Regarding claim 8; Yoshida '757 discloses where said next-job attribute consists of whether the data is binary data or multi-value data (*"For printing, the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data. The image data in memory 304 is transferred to print*

processing unit 40 via rotation processing unit 307 and multi-valuing unit 308." column 8, lines 33-37).

Regarding claim 10; Yoshida '757 discloses where said job includes a copy job in which image data for an original document ready by an original document reader is printed out or a print job in which image data received from an external terminal is printed out ("*Each of copying machines 1, 4, and 6 includes such functions as image reading, image processing with which read images are edited, and printing."* column 4, lines 25-26).

Regarding claim 11; Yoshida '757 discloses a data processing apparatus comprising: one or more compression/decompression unit(s) that compress the data for the input job and decompress the compressed data (*"image data is then compressed by compressing unit 311 and is stored into code memory 306 as compressed image data."* column 8, lines 1-3). See also (*" ...the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data."* column 8, lines 32-34).

Yoshida '757 does not expressly disclose a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, identifies an attribute of said next job, and determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, as well as on said identified next-job attribute, and controls

the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination.

Dye '273 discloses and a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, identifies an attribute of said next job, and determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, as well as on said identified next-job attribute, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination (*"In one embodiment where the parallel compression and decompression engine 251 does not contain SRAM buffer storage, the L3 data cache 291 can double for such SRAM buffers used to store write blocks for future compression and read blocks for future decompression. Thus the L3 data cache 290 may be used to store compressed blocks which await future decompression for either read or write operations. For example, the L3 data cache 291 may be used to store LRU pages that are waiting to be compressed and transferred to the non-volatile memory. Thus the L3 data cache 291 and associated cache control logic 281 buffer the transactions to improve memory access latency for both read and write operations of both compressed/decompressed transactions or transactions which require uncompressed operation (no compression or decompression)."* column 20, lines 27-42). See also (*"Thus, the compression cache control unit 281 along with the switch unit 261 determine the transaction type, priority and control required to complete the*

transaction by either the L3 data cache 291, the parallel compression and decompression unit 251 or the main memory interface 560." column 21, lines 63-67).

Yoshida '757 and Dye '273 are combinable because they are from the same field of endeavor of data compression/decompression (*"The present invention relates to computer system architectures, and more particularly to a system and method for performing parallel data compression and decompression..."* Dye '273 at column 1, lines 23-26).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the data processing apparatus as taught by Yoshida '757 by adding a controller that, when a processing request is issued for processing of the data for a next job by said compression/decompression unit(s) during processing of the data for a current job by said compression/decompression unit(s), obtains the processing wait period between pages of said current job, identifies an attribute of said next job, and determines whether or not the data for said next job will undergo compression or decompression based on a comparison between the minimum processing time for said next-job data and said processing wait period, as well as on said identified next-job attribute, and controls the execution of processing of said next job by said compression/decompression unit(s) between pages of said current job in accordance with this determination as taught by Dye '273.

The motivation for doing so would have been to improve latency and reduce performance degradations (*"To improve latency and reduce performance degradations normally associated with compression and decompression techniques..."* Dye '273 at column 4, lines 33-36).

Therefore, it would have been obvious to combine Yoshida '757 with Dye '273 to obtain the invention as specified in claim 11.

Regarding claim 12; Yoshida '757 discloses where said next-job attribute consists of whether the data for the next job is to take place on a page unit, band unit or block unit basis (*"CPU 103 searches print job table PT for a job having the highest priority each time a page of job is processed. The job having the highest priority is generally processed first. Jobs are deleted from print job table PT when the jobs are completed."* column 11, lines 29-33).

Regarding claim 13; Yoshida '757 discloses where said next-job attribute consists of the type of the next job (*"The job IDs are job identification numbers for facsimile transmissions. The priorities indicate the priorities of the jobs for facsimile transmissions. The registration time indicates the time when the job was registered. The job statuses indicate the current statues of the jobs such as SUSPENDED, WAITING, and IN TRANSMISSION."* column 11, lines 38-43).

Regarding claim 14; Yoshida '757 discloses where said next-job attribute consists of the input source for the next job (*"CPU 103 for memory unit 30 controls memory unit 30 and external input/output controlling unit 50. More specifically, CPU 103 stores the image data, which is requested by another apparatus via external input/output controlling unit 50, into memory unit 30. CPU 103 reads the image data from memory unit 30 and instructs print processing unit 40 to output the image data to execute printing. CPU 103 also instructs facsimile converting unit 51 to output the image data to execute a facsimile transmission. CPU 103 instructs external input/output controlling unit 50 to output the image data to send the image data to another apparatus for a requested job."* column 7, lines 23-34).

Regarding claim 15; Yoshida '757 discloses where said next-job attribute consists of whether the data is binary data or multi-value data (*"For printing, the image data is read from*

code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data. The image data in memory 304 is transferred to print processing unit 40 via rotation processing unit 307 and multi-valuing unit 308." column 8, lines 33-37).

Regarding claim 17; Yoshida '757 discloses where said processing wait period is longer than said minimum processing time, said controller permits said compression/decompression unit(s) to process said next job between pages of said current job (*"For printing, the image data is read from code memory 306, decompressed by decompressing unit 312, and written into image memory 304 as decompressed image data. The image data in image memory 304 is transferred to print processing unit 40 via rotation processing unit 307 and multi-valuing unit 308."* column 8, lines 33-38). See also (*"CPU 103 judges whether another page should be processed by referring to the memory management table while the current page is processed. If there is no other pages to be processed, CPU 103 performs the termination process for the current job and judges whether there is another job (S86, S80)."* column 17, lines 66-67 thru column 18, lines 1-4).

Regarding claim 18; Yoshida '757 discloses where said controller compares said next-job data minimum processing time and said processing wait period after the next-job attribute is identified (*"Thus, the compression cache control unit 281 along with the switch unit 261 determine the transaction type, priority and control required to complete the transaction by either the L3 data cache 291, the parallel compression and decompression unit 251 or the main memory interface 560."* column 21, lines 63-67).

Regarding claim 19; Yoshida '757 discloses where said job includes a copy job in which image data for an original document read by an original document reader is printed out or a print job in which image data received from an external terminal is printed out ("*Each of copying machines 1, 4, and 6 includes such functions as image reading, image processing with which read images are edited, and printing.*" column 4, lines 25-26).

3. **Claims 9 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida '757 in combination with Dye '273 as applied to claim 4 above, and further in view of Nishikawa '046 et al. (US 6,934,046 hereinafter, Nishikawa '046).

Regarding claim 9; the combination of Yoshida '757 and Dye '273 does not expressly disclose where said next-job attribute consists of whether the data is monochrome data or color data.

Nishikawa '046 discloses where said next-job attribute consists of whether the data is monochrome data or color data (*"A field 1202 denotes physical page setting information in which the setting of layout or color/monochrome is stored when the layout or the color/monochrome can be designated for each physical page."* column 19, lines 22).

Yoshida '757 and Dye '273 are combinable with Nishikawa '046 because they are from the same field of endeavor of a data processing apparatus (*"The present invention relates to an information processor for generating printing data..."* Nishikawa '046 at column 1, lines 9-10).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the data processing apparatus as taught by the combination of Yoshida '757 and

Dye '273 by adding a next-job attribute consisting of whether the data is monochrome data or color data as taught by Nishikawa '046.

The motivation for doing so would have been to provide an arrangement for combining print jobs (*"...it is an object of the present invention to provide an arrangement for combining together print jobs respectively..."* Nishikawa '046 at column 2, lines 19-20).

Therefore, it would have been obvious to combine Yoshida '757 and Dye '273 with Nishikawa '046 to obtain the invention as specified in claim 4.

Regarding claim 16; Nishikawa '046 discloses where said next-job attribute consists of whether the data is monochrome data or color data (*"A field 1202 denotes physical page setting information in which the setting of layout or color/monochrome is stored when the layout or the color/monochrome can be designated for each physical page."* column 19, lines 19-22).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCUS T. RILEY whose telephone number is (571)270-1581. The examiner can normally be reached on Monday - Friday, 7:30-5:00, est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler L. Haskins can be reached on 571-272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marcus T. Riley
Assistant Examiner
Art Unit 2625

/Marcus T Riley/
Examiner, Art Unit 2625

/Twyler L. Haskins/
Supervisory Patent Examiner, Art Unit 2625